

What is claimed is:

1. A modified MRW procedure to prepare a status PDU with a MRW SUFI, which is used by a sender to inform a receiver about moving its reception window boundaries or discarding certain SDUs, wherein the procedure sets up the fields of a MRW SUFI, such as Type, LENGTH, SN_MRW_i, SN_MRW_{LENGTH} (the last SN_MRW_i field) and N_{LENGTH} accordingly; and each PDU has been assigned a corresponding sequential number (SN), wherein the method comprises the steps of:

at the sender:

triggering the MRW procedure upon a plurality of trigger events;

checking the status of a “Send MRW” and acting accordingly;

setting up the SN_MRW_{LENGTH} field for the last discarded SDU and the N_{LENGTH} field accordingly;

while there exists a SN_MRW_i field, other than the SN_MRW_{LENGTH} field, containing the same value as the SN_MRW_{LENGTH} field has,

deleting the SN_MRW_i field containing the same value as the SN_MRW_{LENGTH} field has;

setting N_{LENGTH} equal to 1; and

setting up the LENGTH field accordingly.

2. The method as claimed in claim 1; wherein one of the trigger events is when a time out occurs.

3. The method as claimed in claim 1; wherein one of the trigger events is that the number of retry of sending a PDU exceeds the maximum number of retransmission.
4. The method as claimed in claim 1; wherein setting up the SN_MRW_{LENGTH} field for the last discarded SDU and the N_{LENGTH} field accordingly further comprises the steps of:
 - if the last discarded SDU ends in a PDU containing the “Length Indicator” of the last discarded SDU and the PDU contains no new SDU;
 - setting SN_MRW_{LENGTH} equal to (the SN of the PDU containing the “Length Indicator” of the last discarded SDU+1);
 - setting N_{LENGTH} equal to 0;
 - otherwise if the PDU contains at least one segment of a new SDU,;
 - setting SN_MRW_{LENGTH} equal to (the SN of the PDU containing the “Length Indicator” of the last discarded SDU); and
 - setting N_{LENGTH} equal to 1.
5. The method as claimed in claim 1; wherein setting up the $LENGTH$ field accordingly further comprising the following steps of:
 - if there is only one SN_MRW_i field in the MRW SUFI to be sent and the SN of the SN_MRW_i field extends above the configured transmission window;
 - setting $LENGTH$ equal to 0; and
 - otherwise, setting $LENGTH$ equal to the number of SN_MRW_i fields.

6. The method as claimed in claim 1; wherein checking the status of the “Send MRW” further comprising the steps of:
 - if a “Send MRW” flag is configured;
 - if there is more than 15 discarded SDUs;
 - setting up the MRW SUFI for the first 15 discarded SDUs;
 - handling the rest discarded SDUs accordingly; and
 - assigning each SN_MRWi with the SN of each corresponding discarded SDU.
7. The method as claimed in claim 6; wherein handling the rest discarded SDUs accordingly further comprising the steps of:
 - if the PDU that contains the Length Indicator of the fifteenth discarded SDU contains all the rest discarded SDUs and at least one segment of an SDU that is not discarded;
 - neglecting the rest discarded SDUs; and
 - otherwise, handling the rest discarded SDUs in another MRW procedure.
8. The method as claimed in claim 1; wherein the length of the N_{LENGTH} field can be one bit.
9. A modified MRW procedure to prepare a status PDU with a MRW SUFI, which is used by a sender to inform a receiver about moving its reception window boundaries or these SDUs should be discarded, wherein the procedure sets up the fields of a MRW SUFI, such as Type, LENGTH, SN_MRWi, SN_MRW_{LENGTH} (the last SN_MRWi field) and N_{LENGTH}

accordingly; and each PDU has been assigned a corresponding sequential number (SN), wherein the method comprises the steps of:

at the receiver:

receiving a status PDU with a MRW SUFI from the sender;

checking the value of the LENGTH field and discarding PDUs accordingly;

if the value of the N_{LENGTH} field is equal to 0;

reassembling data from the first data octet of the PDU having its SN equal to $\text{SN_MRW}_{\text{LENGTH}}$;

if the value of the N_{LENGTH} field is not equal to 0

discarding data octets in the PDU having its SN equal to $\text{SN_MRW}_{\text{LENGTH}}$ up to and including the data octet indicated by the first “Length Indicator” field of the same PDU; and

reassembling data from the succeeding data octet after the last discarded data octet of the PDU having its SN equal to $\text{SN_MRW}_{\text{LENGTH}}$.

10. The method as claimed in claim 9, wherein checking the value of the LENGTH field and discarding PDUs accordingly further comprising the steps of:

if the value of the LENGTH field is equal to 0;

processing the received MRW SUFI as if there is only one SN_MRW_i field, $\text{SN_MRW}_{\text{LENGTH}}$;

otherwise if the value of the LENGTH field is not equal to 0;

processing the received MRW SUFI as if there are LENGTH number of SN_MRW_i fields, SN_MRW_i up to $\text{SN_MRW}_{\text{LENGTH}}$; and

discarding PDUs up to and including the PDU having its SN equal to
(SN_MRW_{LENGTH} -1).

11. A sender using a modified MRW procedure to prepare a status PDU with a MRW SUFI to inform a receiver about moving its reception window boundaries or discarding certain SDUs, wherein the procedure sets up the fields of a MRW SUFI, such as Type, LENGTH, SN_MRW_i, SN_MRW_{LENGTH} (the last SN_MRW_i field) and N_{LENGTH} accordingly; and each PDU has been assigned a corresponding sequential number (SN), wherein the sender comprises:

means for triggering the MRW procedure upon a plurality of trigger events;

means for checking the status of a “Send MRW” and acting accordingly;

means for setting up the SN_MRW_{LENGTH} field for the last discarded SDU and the N_{LENGTH} field accordingly;

while there exists a SN_MRW_i field, other than the SN_MRW_{LENGTH} field, containing the same value as the SN_MRW_{LENGTH} field has,

,means for deleting the SN_MRW_i field containing the same value as the SN_MRW_{LENGTH} field has;

means for setting N_{LENGTH} equal to 1; and

means for setting up the LENGTH field accordingly.

12. The sender as claimed in claim 11; wherein means for setting up the SN_MRW_{LENGTH} field for the last discarded SDU and the N_{LENGTH} field accordingly further comprises:

means for checking if the last discarded SDU ends in a PDU containing the “Length Indicator” of the last discarded SDU and the PDU contains no new SDU;

means for setting SN_MRW_{LENGTH} equal to (the SN of the PDU containing the “Length Indicator” of the last discarded SDU+1);

means for setting N_{LENGTH} equal to 0;

means for checking if the PDU contains at least one segment of a new SDU;,,

means for setting SN_MRW_{LENGTH} equal to (the SN of the PDU containing the “Length Indicator” of the last discarded SDU); and

means for setting N_{LENGTH} equal to 1.

13. The sender as claimed in claim 11; wherein means for setting up the LENGTH field accordingly further comprising:

means for checking if there is only one SN_MRW_i field in the MRW SUFI to be sent and the SN of the SN_MRW_i field extends above the configured transmission window;

means for setting LENGTH equal to 0; and

otherwise, means for setting LENGTH equal to the number of SN_MRW_i fields.

14. The sender as claimed in claim 11; wherein means for checking the status of the “Send MRW” further comprising:

means for checking if a “Send MRW” flag is configured;

means for checking if there is more than 15 discarded SDUs;

means for setting up the MRW SUFI for the first 15 discarded SDUs;

means for handling the rest discarded SDUs accordingly; and

means for assigning each SN_MRWi with the SN of each corresponding discarded SDU.

15. The sender as claimed in claim 14; wherein means for handling the rest discarded SDUs accordingly further comprising:

means for checking if the PDU that contains the Length Indicator of the fifteenth discarded SDU contains all the rest discarded SDUs and at least one segment of an SDU that is not discarded;

means for neglecting the rest discarded SDUs; and

otherwise, means for handling the rest discarded SDUs in another MRW procedure.

16. A receiver using a modified MRW procedure to receive a status PDU with a MRW SUFI, which is sent by a sender to inform the receiver about moving its reception window boundaries or these SDUs should be discarded, wherein the procedure sets up the fields of a MRW SUFI, such as Type, LENGTH, SN_MRWi, SN_MRW_{LENGTH} (the last SN_MRWi field) and N_{LENGTH} accordingly; and each PDU has been assigned a corresponding sequential number (SN), wherein the receiver comprises:

means for receiving a status PDU with a MRW SUFI from the sender;

means for checking the value of the LENGTH field and discarding PDUs accordingly;

means for checking if the value of the N_{LENGTH} field is equal to 0;

means for reassembling data from the first data octet of the PDU having its SN equal to SN_MRW_{LENGTH};

means for checking if the value of the N_{LENGTH} field is not equal to 0

means for discarding data octets in the PDU having its SN equal to

SN_MRW_{LENGTH} up to and including the data octet indicated by the first “Length Indicator” field of the same PDU; and

means for reassembling data from the succeeding data octet after the last discarded data octet of the PDU having its SN equal to SN_MRW_{LENGTH} .

17. The receiver as claimed in claim 16, wherein means for checking the value of the LENGTH field and discarding PDUs accordingly further comprising:

means for checking if the value of the LENGTH field is equal to 0;

means for processing the received MRW SUFI as if there is only one SN_MRW_i field, SN_MRW_{LENGTH} ;

means for checking if the value of the LENGTH field is not equal to 0;

means for processing the received MRW SUFI as if there are LENGTH number of SN_MRW_i fields, SN_MRW_1 up to SN_MRW_{LENGTH} ; and

means for discarding PDUs up to and including the PDU having its SN equal to $(SN_MRW_{\text{LENGTH}} - 1)$.